

Downloading SCDHEC Water Quality Data from the USEPA's STORET Database via the Internet

STORET (short for STOrage and RETrieval) is USEPA's repository for water quality, biological, and physical data. It is used by state environmental agencies, EPA and other federal agencies, universities, private citizens, and others. The SCDHEC's water quality data is stored in the USEPA's STORET database and is available from this source on the Internet.

STORET data available on the Internet is divided into two separate databases, according to when it was originally collected. Data collected through 1998 are stored in the STORET Legacy Data Center (Legacy STORET for short). Data collected since January 1, 1999 have been placed in the Modernized STORET System.

The procedures for downloading data from these two databases are slightly different, as is the flexibility for restricting the parameters extracted, and the format of the exported data. The following are instructions for downloading SCDHEC water quality data from both of these databases.

Within each of these databases there are many different approaches that can be used to retrieve data. These instructions document only one of these approaches, but it is the most direct approach for obtaining data for specific SCDHEC monitoring locations. To follow these instructions certain pieces of information are required. The requirements are slightly different for the two databases, e.g. Parameter Codes are only necessary when retrieving data from Legacy STORET.

REQUIRED BACKGROUND SCDHEC INFORMATION

Organization Code (or Station Org ID)

The SCDHEC STORET Organization Code is **21SC60WQ**

The following information is necessary in order to follow the instructions provided for the STORET website and can be obtained from the SCDHEC Bureau of Water website <http://www.scdhec.net/water/>

Station ID

For a map of SCDHEC monitoring site locations go to:

<http://www.scdhec.net/water/>

and select Water Monitoring from the list of topics on the left, then select Surface Water Monitoring, then Ambient Surface Water Monitoring from the top box, then select the Monitoring Stations Location Map from the upper right-hand corner. You can then use the magnifying glass tool to zoom in on a selected area of the map so the site numbers (Station IDs) are legible.

Alternately you can find lists of site numbers (Station IDs) on specific waterbodies in the State of South Carolina Monitoring Strategy, Appendix B: Ambient Surface Water Quality Monitoring Sites Listed by Waterbody, at

<http://www.scdhec.net/eqc/water/pubs/appb.pdf>

or a list of site numbers (Station IDs) and descriptions listed by region (Lab District) of the state in the State of South Carolina Monitoring Strategy, Appendix A: Ambient Surface Water Quality Monitoring Site Descriptions Listed by Laboratory District, at

<http://www.scdhec.net/eqc/water/pubs/appa.pdf>

Parameter Codes (only used in Legacy STORET)

A list of the most common STORET Parameter Codes used by SCDHEC appears in the State of South Carolina Monitoring Strategy, Appendix D: Parameters Sampled at Ambient Surface Water Quality Monitoring Sites at:

<http://www.scdhec.net/eqc/water/pubs/appd.pdf>

OBTAINING WATER QUALITY DATA FROM THE USEPA STORET WEBSITE

The address of the USEPA STORET website is

<http://www.epa.gov/STORET/>

From the main STORET home page choose “Obtaining Water Quality Data”.

To download pre-1999 data from Legacy STORET

1. From the **STORET Database Access** page, scroll down and choose “Browse or Download Legacy STORET Data”
2. From the **STORET Legacy Data Center** home page choose the “Query” bar from the list on the left of the screen
3. From the **STORET Legacy Data Center, Create a query** page choose “Experienced STORET users can use the Advanced Query form”

This will get you to the form where you begin to specify the monitoring sites, date range, and parameters that you want to download.

Hint, this form is case-sensitive, so you will find it easiest to set “Caps Lock” on.

Step 1 – Station Criteria

Station Type: Check all three boxes, **Surface Water**, **Ground Water**, and **Pipe**. This will ensure that you will get all available data.

Organization Code: Type in **21SC60WQ**

Station IDs: If you know the monitoring site numbers for which you wish to retrieve data they can be typed into the lower box in a continuous string separated by commas, e.g., MD-210, SV-363, etc.

If there are multiple site numbers beginning with the same characters, another option is to use the “Search String:” box. Type in the beginning characters and click Search. This brings up a pick-list of all of the SCDHEC monitoring site numbers beginning with the entered character string. Multiple selections can be made from the displayed list by holding the Ctrl key and clicking on each desired station number, then clicking the “Add To Selections” button.

Continue this process until all the desired sites have been added to the lower box under Station IDs:. This is all that is required in this Step. Scroll down to Step 2.

Step 2: Sample Criteria

Enter the date range for which you wish to retrieve data, Begin Date and End Date. Be sure to use the date format shown, including the four-digit year.

This is all that is necessary for this Step. Scroll down to Step 3.

Step 3: Result Criteria

Parameter Code: If you want to retrieve all data for the specified stations, just leave this field blank. Otherwise, if you know the Parameter Codes for which you wish to retrieve data they can be typed into the lower box in a continuous string separated by commas, e.g., 00300,00400,31616, etc. Note that all 5 digits are required.

If there are multiple Parameter Codes beginning with the same digits another option is to use the “Search String:” box. Type in the beginning characters and click Search by Code. This brings up a pick-list of all of the Parameter Codes beginning with the entered digits. Multiple selections can be made from the displayed list by holding the Ctrl key and clicking on each desired Parameter Code, then clicking the “Add Selections” button. Continue this process until all the desired sites have been added to lower box.

Tip: At lake and estuarine sites, field parameters (DO, water temperature, salinity, conductivity, etc.) may be profiled through the water column, so if retrieving these types of parameters from these waterbody types it is wise to include parameter 82048, Depth to Bottom of the Sampling Interval, in meters. It can then be matched by time to the individual parameter values to determine what depth in the water column they represent.

Using the “Search by Name” button is not recommended. If you type in the word “copper” and click “Search by Name” over 45 choices are displayed that differ in media, fraction, reporting units, analytical procedure, etc. It is not possible to tell which ones have stored data for the agency, sites, and dates you have selected. That is why it is recommended that you refer to the list of codes used by SCDHEC mentioned above, Appendix D: Parameters Sampled at

Ambient Surface Water Quality Monitoring Sites, as the basis for your Parameter Code selections.

This is all that is necessary in this Step. Scroll down to Step 4.

Step 4: Submit Form

Click “Done”.

Confirmation Page

The **Confirmation Page** is now displayed, which gives a summary of what you are requesting.

To obtain the raw data values, under Report Type you must click on the “Detailed Data Report” button.

To obtain an export format that is easily imported into spreadsheet or database applications, under Output Format you must click on the “TXT: Comma separated report. Open in separate application such as a word processor or spreadsheet” button.

Then click the “Continue >>” button at the bottom of the screen.

You will next see a warning screen telling you that the search results could take a minute or more, and to please be patient. Just click the “OK” button.

Search Results for this Detailed Data Report

The **Search Results for this Detailed Data Report** page is now displayed. It summarizes the amount of data found that satisfies your data request including the number of stations returned, the number of samples returned, and the number of results returned.

Depending on the amount of data found, one of two options appears. If the amount is small, you can go directly to the “Submit” button and click. The results of your request will then be displayed on the screen and you can then save it to your computer’s hard drive for later analysis.

If the amount of data is large, i.e., more than 50 stations, 400 samples, or 700 results, then the retrieval will have to run overnight (it is often quicker than that) and will produce a file that you can download the next day. In this case you must enter your email address and you will be notified when your report is ready. You must also specify three characters to prefix your report name so you can more easily find it for downloading the next day. Then you can click the “Submit” button. This will bring up the **Report Notification** page that gives the web address for file pick-up and the name of the file that you will be looking for.

You will receive an E-Mail when your data file is ready. The E-Mail will also contain the web address of the pick-up site as well as the name of the file. When you go to pick up the file it will open in your web browser and you can save it to your computer’s hard drive.

Regardless of whether you get the data immediately or overnight, the file structure is a comma delimited text file that can be imported into most spreadsheet or database applications. Note that the numeric result values are displayed in scientific notation. Most spreadsheet or database applications will allow you to reformat these values to straight number results. You may also want to format the “Start Date” field as a date format, as this may be important for later data analyses.

To download post-1998 data from Modernized STORET

There is little control on parameter selection in Modernized STORET. In essence you can only request only all water results, only all sediment results, or all results for the selected sites.

From the main **STORET Database Access** page choose “Obtaining Water Quality Data” (see above).

Scroll down and choose “Browse or Download Modernized STORET Data”.

From the **STORET Warehouse Data Retrieval Menu** page choose “Enter Stations”.

On the **Enter Stations** page, type in **21SC60WQ** under Station Org ID. Under Station ID, type in the first SCDHEC site number. Click on the yellow button with the “>>” to move the site number to the list of stations on the right half of the screen. Continue typing in site numbers and sending them to the list on the right half of the screen. When your list is complete, scroll down and click on “Show Stations”.

On the **Station Selection** page, leave “Select All” highlighted and scroll down and click on “Station Visits”.

On the **Station Visit Date Filters** page, select the From and To for the date range of interest, then click “Show Station Visits”.

On the **Station Visit Selection** page you can further restrict the sample dates by using the Ctrl key and clicking on only the station visits for which you wish to retrieve data, or you can leave “Select All” highlighted to get results from all visits. Scroll down and click on “Show Activities”.

On the **Activity Filters** page you can select results for water only, sediment only, or leave “Select All” highlighted. Scroll down and click on “Show Activities”.

On the **Activity Selection** page, leave “Select All” highlighted and scroll down and click on “Download Results”.

Depending on the amount of data found, one of two options appears. On. If the amount is small, the **Download Results** page is displayed and you can click on [Download your file now...](#). The results of your request will then be displayed on the screen and you can then save it to your computer’s hard drive for later analysis.

If the amount of data is large, i.e., more than 200 activities, then the retrieval will have to run overnight (it is often quicker than that) and will produce a file that you can download the next day. In this case the **Activity Batch Confirmation** page appears and you must enter your E-

Mail address. You will receive an E-Mail notification when your report is ready. You must also specify three characters to prefix your report name so you can more easily find it for downloading the next day. Then you can click the “Submit” button.

This will bring up the **Batch Notification** page that gives the web address for file pick-up and the name of the file that you will be looking for.

You will receive an E-Mail when your data file is ready. The E-Mail will also contain the web address of the pick-up site as well as the name of the file. When you go to pick up the file, it will open in your web browser and you can save it to your computer’s hard drive.

Regardless of whether you get the data immediately or overnight, the file structure is a tilde (~) delimited text file that can be imported into most spreadsheet or database applications. You may want to format the “Act Start” field as a date format, as this may be important for later data analyses.